

Service Manual

Black and White Television

TR-602EU

Chassis

No. T125D-E

File with TR-602ES service manual.

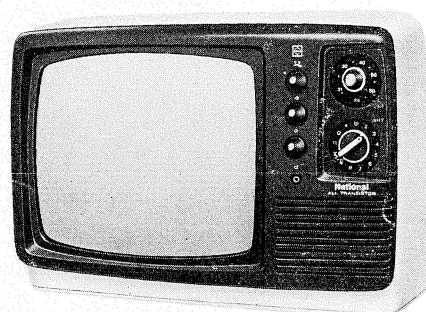
Model TR-602EU is the same as model TR-602ES except as specified herein.

For complete service information, refer to TR-602ES service manual.

Bitte ins Handbuch TR-602ES einordnen!

Modell TR-602EU ist ausser der Beschreibung hier gleich mit dem Modell TR-602ES.

Vollständige Auskünfte zum Kundendienst seien auf das Service-Handbuch für TR-602ES verwiesen.



Specifications

Power Source:	AC 220V 50Hz DC 12V
Power Consumption:	AC 33W DC 16W
Antenna:	UHF/VHF Monopole antenna 75Ω unbalanced type UHF/VHF External antenna 75Ω balanced type
Receiving Channels:	VHF 2ch-12ch C.C.I.R. Standard UHF 21ch-69ch C.C.I.R. Standard
Intermediate:	Video: 38.9MHz Sound: 33.4MHz
Stages:	Video: I-F : 3 Sound: I-F : 1 (1C)
Transistors:	27
Diodes:	20, 1 Thermistor
High Voltage Rectifier:	1 (TVM569)
IC:	1 (AN240)
Picture Tube:	310GUB4 31cm Picture Tube 90° Deflection Heater Voltage 12V Heater Current 67mA
Speaker:	9cm Round Type
Audio Output:	Max. 0.9W
Automatic Controls:	Keyed AGC (Automatic Gain Control) AVR (Automatic Voltage Regular) Saw-Tooth AFC (Automatic Frequency Control)
Dimensions:	Height: 29cm Width: 42cm Depth: 31cm
Weight:	7.7Kg
Car Battery Cord:	TY-170E (Optional) TY-172E (Optional)

Technische Daten

Netzspannung:	AC 220V 50Hz DC12V
Leistungsaufnahme:	AC 33W DC16W
Antenne:	UHF/VHF Monopole Antenne 75Ω Asymmetrisch UHF/VHF Aussenantenne 75Ω Symmetrisch
Empfangsbereiche:	VHF K2-K12 C.C.I.R. Norm UHF K21-K69 C.C.I.R. Norm
Zwischenfrequenz:	Bild: 38.9MHz Ton: 33.4MHz
Stufen:	Bild-ZF : 3 Ton-ZF : 1 (1C)
Halbleiter:	27
Dioden:	20, 1 Thermistoren
Hochspannung Gleichrichter:	1 (TVM569)
IC:	1 (AN240)
Bildröhre:	310GUB4 31cm 90° Ablenkung Heizspannung 12V Heizstrom 67mA
Lautsprecher:	9cm Rund
Tonausgang:	Max. 0.9W
Automatiken:	Getastete AGC (Automatische Verstärkungs Regelung) AVR (Automatische Spannungsregelung) Sägezahn AFC (Automatische Frequenzregelung)
Abmessungen:	Höhe: 29cm Breite: 42cm Tiefe: 31cm
Gewicht:	7.7Kg
Auto-Batterie Anpassung:	TY-170-E (Als Sonderzubehör) TY-172-E (Als Sonderzubehör)



National

Matsushita Electric Trading Co., Ltd.

P.O. Box 288, Central Osaka Japan

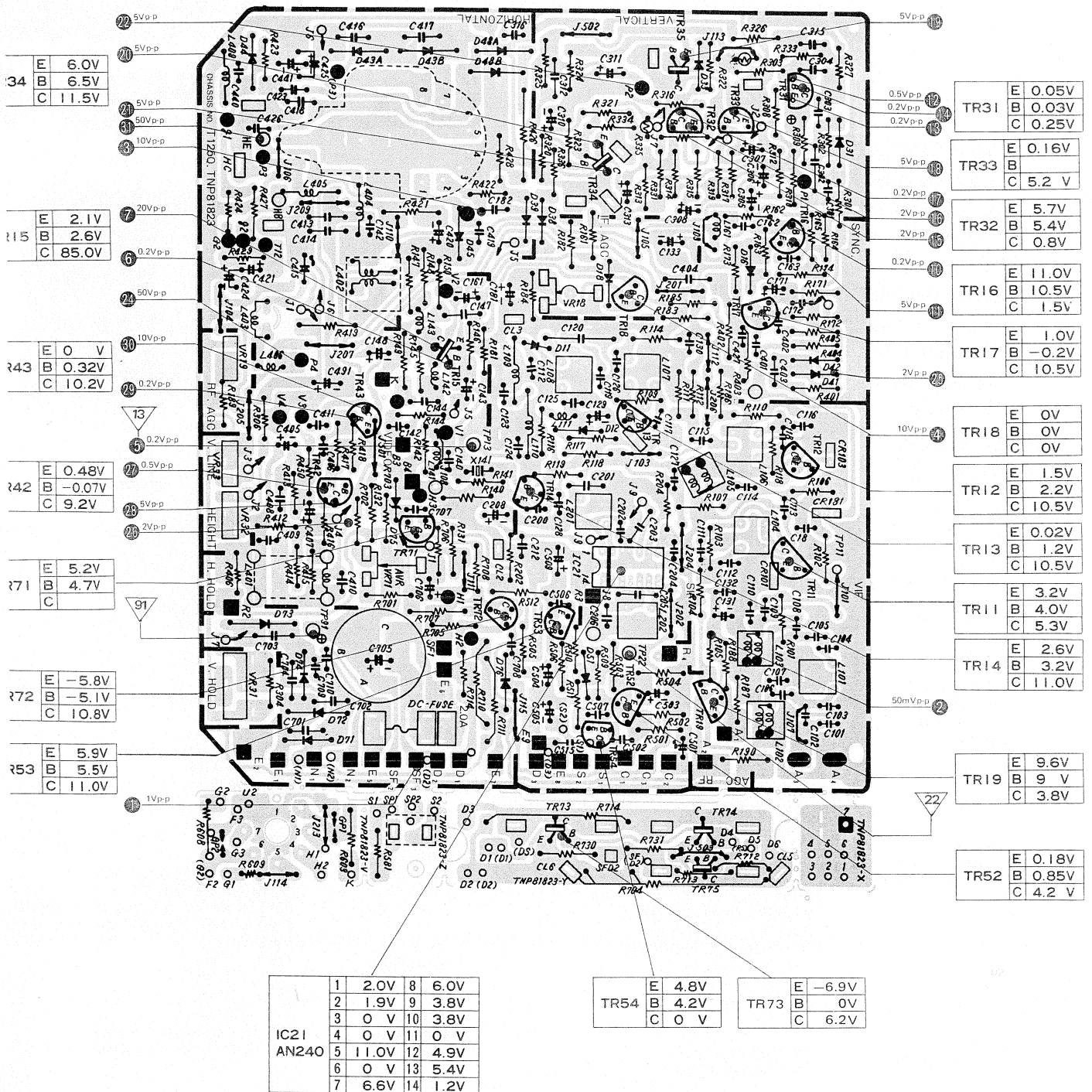
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MAIN CIRCUIT BOARD

GEDRUCKTE SCHALTUNGEN

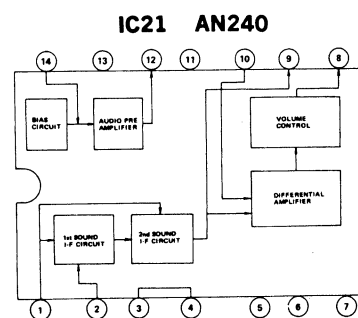
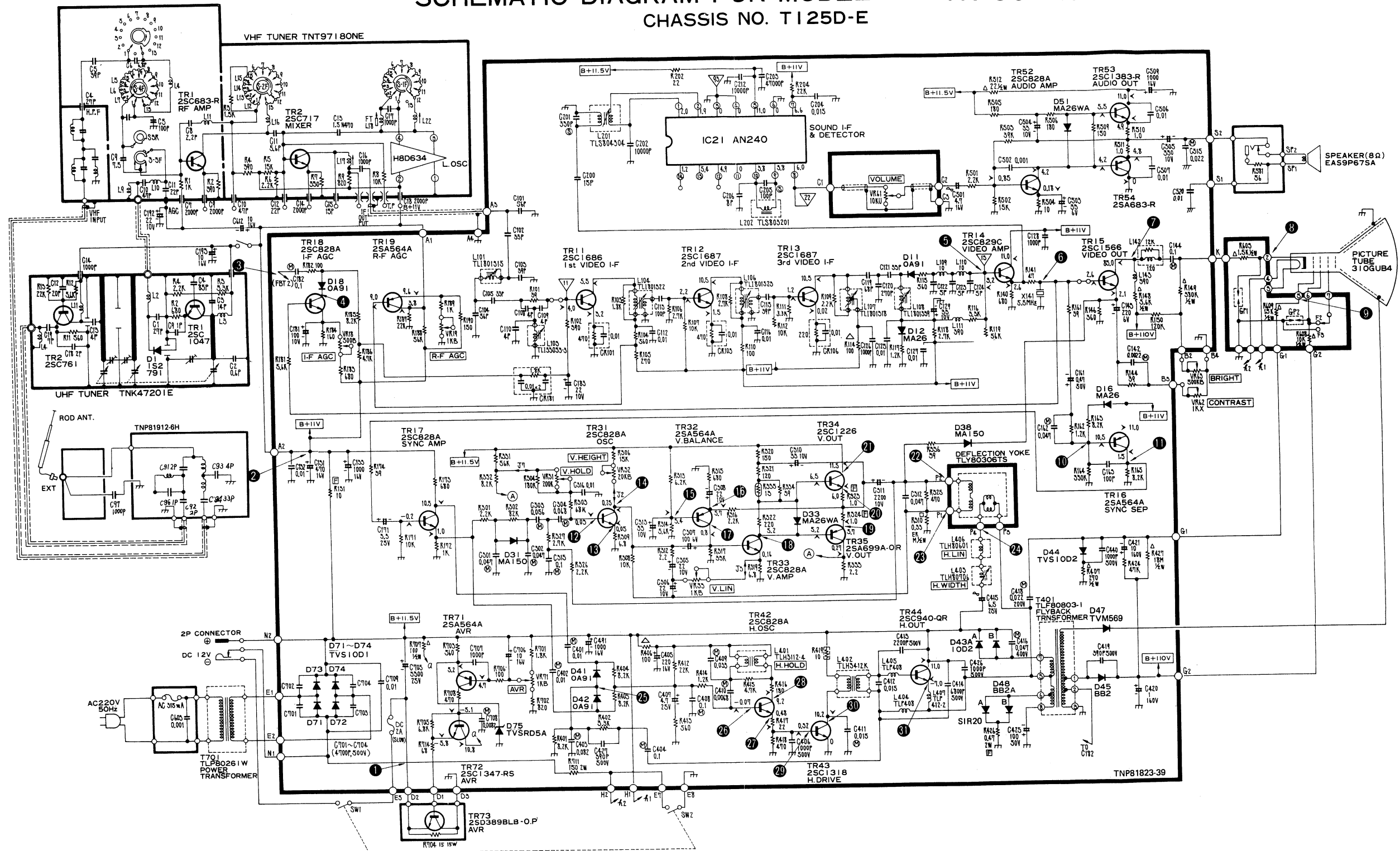
CONDUCTOR VIEW

ANSICHT DER LEITERBAHNEN



SCHEMATIC DIAGRAM FOR MODEL NO. TR-602EU

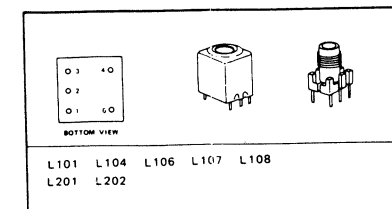
CHASSIS NO. T125D-E



TRANSISTOR BASE INFORMATION

COLLECTOR	BASE	EMITTER	COLLECTOR	BASE	EMITTER	COLLECTOR	BASE	EMITTER	COLLECTOR	BASE	EMITTER
2SC717	2SC683	2SC761	2SC948	2SA683	2SA751	2SC901A	2SC940	2SC1383	2SC1383	2SC1383	2SC1383
2SA564A	2SC1886	2SC828A	2SC829	2SC1687	2SC1318	2SC1012	2SA699	2SC1226	2SC562	2SC563	2SD389

TRANSFORMER TERMINAL INFORMATION



NOTE

- RESISTOR**
All resistors are carbon 1/4W resistor, unless otherwise noted the following marks.
Unit of resistance is OHM (Ω). (K=1,000, M=1,000,000)
 △ : Solid resistor
 □ : Wire wound resistor
 ⊕ : Fuse resistor
- CAPACITOR**
All capacitors are ceramic 50V capacitor, unless otherwise noted the following marks.
Unit of capacitance is μF, unless otherwise noted.
 ⊕ : Polyester capacitor
 ⊙ : Polystyrene capacitor
 ⊕ : Electrolytic capacitor

- COIL
Unit of inductance is μH.
- TEST POINT
▽ : Test point position
- VOLTAGE MEASUREMENT**
Voltage is measured by a volt ohm meter with DC 20K OHM/V receiving normal signal, when all controls are set to the maximum position.
- Number in red circle indicates waveform number.
- When arrow mark (↗) is found, connection is easily found along with the direction of an arrow.
- When schematic diagram of a board is described in more than two places, they are encircled with dotted line (---).
- This schematic diagram is the latest at the time of printing and subject to change without notice.

(Oct. 1976)

WAVEFORM PATTERN

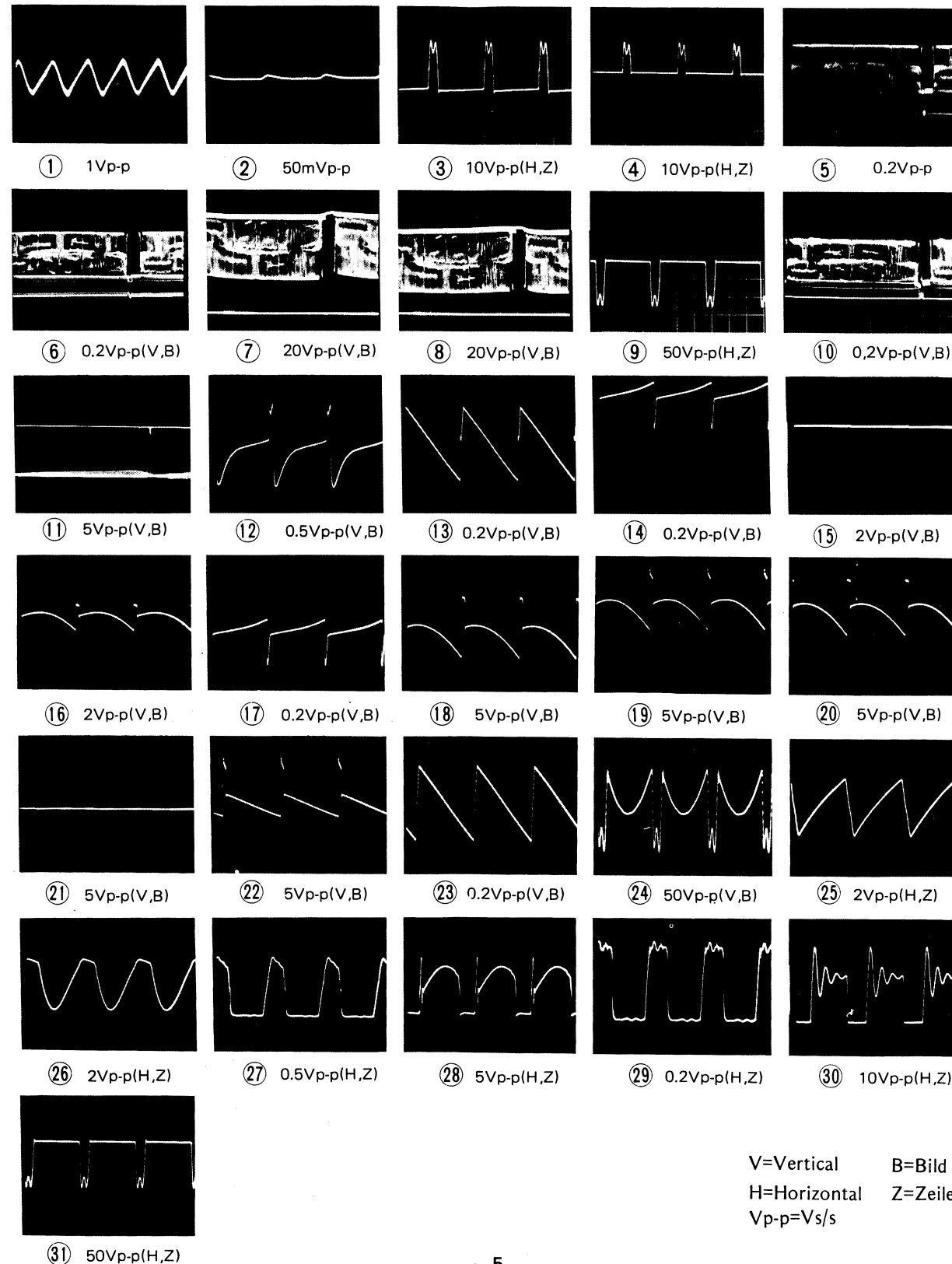
WELLENFORMABBILDUNG

These waveforms were taken with C.C.I.R. (VHF) signal.

The peak to peak voltage were measured setting brightness and contrast controls at maximum position.

Diese Wellenformen wurden mit C.C.I.R. (VHF) Signal gemessen.

Die s/s Volt Messung wurde erreicht mit Helligkeit und Kontrast Wahlschalter in Stellung Maximum.



V=Vertical B=Bild
H=Horizontal Z=Zeile
Vp-p=Vs/s

REPLACEMENT PARTS LIST

ERSATZTEILLISTE

Note: Main Circuit Board (TNP81823-39) is not available as a complete Circuit Board.
Bemerkung: TNP81823-39 die gedruckte schaltung tst nicht als komplet bestückte einheit lieferbar.

REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION	REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION
MAIN PARTS					
	TKE805503-2H	Escutcheon Complete (White)		TJS828190	75ΩTerminal
	TKE805504-2H	Escutcheon Complete (Yellow)		XBAT6202-0	DC Fuse 2A
	TKE805505-2H	Escutcheon Complete (Red)		TJB80108-6SE	Power Circuit Board
	TKU827203-4H	Rear Cover Complete (White)		TNP81912-6H	U/V Signal Separator Circuit Board Complete
	TKU827204-4H	Rear Cover Complete (Yellow)		TGPS152BI	Spark Gap
	TKU827205-4H	Rear Cover Complete (Red)		XBA2C04TRO	Fuse AC 315mA
	TBM83586-1	Model Plate		TJB80272S	Antenna Terminal Board Complete
	TBX80760	VHF Inner Knob		TWH810065	High Voltage Wire With Cap
	TBX80758	VHF Outer Knob		TMM81544SE	Selen. Cap.
	TBX257-1	UHF Inner Knob		TPC803981	Outer Carton
	TBX3783	UHF Outer Knob		XAPD01602	Filler Complete
	TBX80569	On-Off Volume Knob		TPE84002	Set Cover
	TBX80570	Contrast, Bright Knob		TQB811045	Fan Bag
	TKP8010963	VHF Indicator Plate		TQB810027	Instruction Book
	TKP8011631	UHF Indicator Plate		TQB810045	Instruction Sheet
	310GUB4	Picture Tube	SCREWS		
	TNT97180NE	VHF Tuner		XTB4+20AFC	Rear Cover Mounting Screw
	TNK47201E	UHF Tuner		THE206-5S	Rear Cover Mounting Screw
	TLY80306TS	Deflection Yoke		XSB3+10FCS	Antenna Mounting Screw
	EAS9P67SA	Speaker		XTB4+15A	Tuner Block, Power Block Mounting Screw
	EAE3YDAA	Earphone		XTB4+12A	Speaker Mounting Screw
	TSA125-4SB	Rod Antenna		THE399-2	Picture Tube Mounting Screw
	TSX189	Power Cord		XSN3+8S	UHF Tuner Mounting Screw
	TJS828041	DC Socket		XTV3+10B	VHF Tuner Mounting Screw
	TKK800515	AC Cord Holder		THE194-2S	Antenna Terminal Board Mounting Screw
	TMM6956	AC Cord Stopper		XTV3+8B	DC Socket Bracket Mounting Screw
	TJS25640	Picture Tube Socket		XTV3+8A	Shield Plate Mounting Screw
	TJC3316	Fuse Terminal (DC)		XTV3+12A	AC Cord Holder Mounting Screw
	TKX803601	Tuner Bracket		XTB4+10B	Power Transformer Mounting Screw

REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION	REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION
TRANSISTORS			L403	TLH80706	Horiz. Width
TR11	2SC1686	1st Video I-F	L405	TLP408	Choke Coil
TR12	2SC1687	2nd Video I-F	L406	TLH80601	Horiz. Line Coil
TR13	2SC1687	3rd Video I-F	CAPACITORS		
TR14	2SC829C	Video Amp.	C91	ECCD2H020C	Ceramic 2pF $\pm 0.25\text{pF}$ 500V
TR15	2SC1566	Video Output	C92	ECCD2H020C	Ceramic 2pF $\pm 0.25\text{pF}$ 500V
TR16	2SA564A	Sync. Sep.	C93	ECCD1H040C	Ceramic 4pF $\pm 0.25\text{pF}$ 500V
TR17	2SC828A	Sync. Amp.	C94	ECCD2H330K	Ceramic 33pF $\pm 10\%$ 500V
TR18	2SC828A	I-F AGC	C97	ECCD2H102PE	Ceramic 1000 pF $+100\%-0\%$ 500V
TR19	2SA564A	R-F AGC	C101	ECCD1H560K	Ceramic 56pF $\pm 10\%$ 50V
TR31	2SC828A	Vert. Osc.	C102	ECCD1H330K	Ceramic 33pF $\pm 10\%$ 50V
TR32	2SA564A	Vert. Balance	C103	ECCD1H390K	Ceramic 39pF $\pm 10\%$ 50V
TR33	2SC828A	Vert. Drive	C104	ECCD1H560K	Ceramic 56pF $\pm 10\%$ 50V
TR34	2SC1226	Vert. Output	C105	ECCD1H330K	Ceramic 33pF $\pm 10\%$ 50V
TR35	2SA699A	Vert. Output	C108	ECCD1H040CC	Ceramic 4pF $\pm 0.25\%$ 50V
TR42	2SC828A	Horiz. Osc.	C109	ECCD1H040CC	Ceramic 4pF $\pm 0.25\%$ 50V
TR43	2SC1318	Horiz. Drive	C110	ECCD1H040CC	Ceramic 4pF $\pm 0.25\%$ 50V
TR44	2SC940	Horiz. Output	C112	ECKD1H103PF	Ceramic 0.01 μF $+100\%-0\%$ 50V
TR52	2SC828A	Audio Amp.	C113	ECCD1H101K	Ceramic 100pF $\pm 10\%$ 50V
TR53	2SC1383	Audio Output	C115	ECCD1H390K	Ceramic 39pF $\pm 10\%$ 50V
TR54	2SA683	Audio Output	C116	ECKD1H103PF	Ceramic 0.01 μF $+100\%-0\%$ 50V
TR71	2SA564A	AVR	C119	ECCD1H680J	Ceramic 68pF $\pm 5\%$ 50V
TR72	2SC1347	AVR	C120	ECCD1H271J	Ceramic 270pF $\pm 5\%$ 50V
TR73	2SD389BLB	AVR	C121	ECCD1H330J	Ceramic 33pF $\pm 5\%$ 50V
I. C. & DIODES			C122	ECCD1H050D	Ceramic 5pF $\pm 0.5\%$ 50V
IC21	AN240	Sound Amp.	C123	ECCD1H050D	Ceramic 5pF $\pm 0.5\%$ 50V
D11	OA91	Video Deceptor	C124	ECCD1H050D	Ceramic 5pF $\pm 0.5\%$ 50V
D12	MA26	Blanking	C125	ECKD1H103PF	Ceramic 0.01 μF $+100\%-0\%$ 50V
D16	MA26	Blanking	C126	ECKD1H102MB	Ceramic 1000pF $\pm 20\%$ 50V
D18	OA91	I-F AGC	C127	ECKD1H103PF	Ceramic 0.01 μF $+100\%-0\%$ 50V
D31	MA150	Sync. Sep.	C128	ECKD1H102MB	Ceramic 1000pF $\pm 20\%$ 50V
D33	MA26WA	Balance	C129	ECEA10V33L	Electrolytic 33 μF 10V
D38	MA150	Temperature Control	C131	ECEA16V470L	Electrolytic 470 μF 16V
D41	OA91	Horiz. AFC	C132	ECKD1H103PF	Ceramic 0.01 μF $+100\%-0\%$ 50V
D42	OA91	Horiz. AFC	C133	ECEA16V1000E	Electrolytic 1000 μF 16V
D43A	TVS10D2	Damper	C142	ECQM05222KZ	Polyester 2200pF $\pm 10\%$ 50V
D43B	TVS10D2	Damper	C143	ECEA6V220L	Electrolytic 220 μF 6V
D44	TVS10D2	Damper	C144	ECQM05104KZ	Polyester 0.1 μF $\pm 10\%$ 50V
D45	TVSBB2	Damper	C161	ECEA50ZR47M	Electrolytic 0.47 μF 50V
D47	TVM569	High Voltage Rectifier	C162	ECQM05473KZ	Polyester 0.047 μF $\pm 10\%$ 50V
D48A	TVSS1R20	High Voltage Rectifier	C163	ECKD1H101K	Ceramic 100pF $\pm 10\%$ 50V
D48B	TVSBB2A	High Voltage Rectifier	C171	ECEA25V3R3L	Electrolytic 3.3 μF 25V
D51	MA26WA	Audio	C181	ECEA10V100L	Electrolytic 100 μF 10V
D71	TVS10D1	Power Rectifier	C182	ECQM05104KZ	Polyester 0.1 μF $\pm 10\%$ 50V
D72	TVS10D1	Power Rectifier	C183	ECSZ10EF22N	Electrolytic 22 μF 10V
D73	TVS10D1	Power Rectifier	C192	ECEA10V22L	Electrolytic 22 μF 10V
D74	TVS10D1	Power Rectifier	C193	ECEA16V10L	Electrolytic 10 μF 16V
D75	TVSRD5A	Zener	C200	ECCD1H150J	Electrolytic 150pF $\pm 5\%$ 50V
COILS			C201	ECQS1331J	Styrol 330pF $\pm 5\%$ 125V
L101	TLI801315	Video I-F Input Coil	C202	ECKD1H103PF	Ceramic 0.01 μF $+100\%-0\%$ 50V
L103	TLI33053-3	Trap Coil	C203	ECKD1H473ZF	Ceramic 0.047 μF $+80\%-20\%$ 50V
L104	TLI801322	1st Video I-F Transformer	C204	ECQM05153KZ	Polyester 0.015 μF $\pm 10\%$ 50V
L106	TLI801323	2nd Video I-F Transformer	C205	ECQS1101J	Styrol 100pF $\pm 5\%$ 100V
L107	TLI801318	3rd Video I-F Transformer	C206	ECCD1H080DC	Ceramic 8pF $\pm 0.5\%$ 50V
L108	TLI801339	Video Detector Transformer	C212	ECKD1H103PF	Ceramic 0.01 μF $+100\%-0\%$ 50V
L109	TLQ100-999	Peaking Coil 10 μH	C301	ECQM05473KZ	Polyester 0.047 μF $\pm 10\%$ 50V
L110	TLQ100-999	Peaking Coil 10 μH	C302	ECQM05473KZ	Polyester 0.047 μF $\pm 10\%$ 50V
L111	TLT391-999	Peaking Coil 390 μH	C303	ECQM05563KZ	Polyester 0.056 μF $\pm 10\%$ 50V
L142	TLU121-123	Peaking Coil 120 μH	C304	ECQM05683KZ	Polyester 0.068 μF $\pm 10\%$ 50V
L143	TLT391-999	Peaking Coil 390 μH	C305	ECSZ10EF22N	Electrolytic 22 μF 10V
L201	TLS804304	Sound I-F Input Coil	C306	ECSZ10EF22N	Electrolytic 22 μF 10V
L202	TLS803201	Sound I-F Input Coil	C307	ECEA6V100L	Electrolytic 100 μF 6V
L401	TLH3112-4	Horiz. Hold	C308	ECSZ10EF22N	Electrolytic 22 μF 10V
L402	TLH3412K	Horiz. Drive	C310	ECEA10V33L	Electrolytic 33 μF 10V
			C311	ECEA10V2200L	Electrolytic 2200 μF 10V
			C312	ECKD1H473ZF	Ceramic 0.047 μF $+100\%-0\%$ 50V

REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION				REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION			
C313	ECEA10V33L	Electrolytic	33 μ F	10V		R111	ERD14TJ332	Carbon	3.3K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C315	ECQM05104KZ	Polyester	0.1 μ F $\pm 10\%$	50V		R112	ERD14TJ103	Carbon	10K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C316	ECKD1H103PF	Ceramic	0.01 μ F +100%-0%	50V		R114	ERC12G5101	Solid	100 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C401	ECQM05103KZ	Polyester	0.01 μ F $\pm 10\%$	50V		R115	ERD14TJ561	Carbon	560 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C402	ECQM05103KZ	Polyester	0.01 μ F $\pm 10\%$	50V		R116	ERD14TJ332	Carbon	3.3K	$\pm 5\%$	$\frac{1}{4}$ W
C403	ECQM05823KZ	Polyester	0.082 μ F $\pm 10\%$	50V		R117	ERD14TJ122	Carbon	1.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C404	ECQM05104KZ	Polyester	0.1 μ F $\pm 10\%$	50V		R118	ERD14TJ272	Carbon	2.7K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C405	ECEA16V220L	Electrolytic	220 μ F	16V		R119	ERD14TJ563	Carbon	56K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C406	ECKD2H102KB	Ceramic	1000pF $\pm 10\%$	500V		R131	ERD14TJ100	Carbon	10 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C407	ECEA25V4R7L	Electrolytic	4.7 μ F	25V		R140	ERD14TJ681	Carbon	680 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C408	ECQM05104KZ	Polyester	0.1 μ F $\pm 10\%$	50V		R141	ERD14TJ470	Carbon	47 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C409	ECQM05333JZ	Polyester	0.033 μ F $\pm 5\%$	50V		R144	ERD14TJ390	Carbon	39 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C410	ECQM05682KZ	Polyester	6800pF $\pm 10\%$	50V		R146	ERD14TJ361	Carbon	360 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C411	ECQM05153KZ	Polyester	0.015 μ F $\pm 10\%$	50V		R148	ERD12GJ562	Solid	5.6K Ω	$\pm 10\%$	$\frac{1}{4}$ W
C412	ECQM05153KZ	Polyester	0.015 μ F $\pm 10\%$	50V		R149	ERD12GJ334	Solid	330K Ω	$\pm 10\%$	$\frac{1}{4}$ W
C413	ECKD2H222MD	Ceramic	2200pF $\pm 20\%$	500V		R150	ERD14TJ124	Carbon	120K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C414	ECKD2H682MD	Polyester	6800pF $\pm 20\%$	500V		R161	ERD14TJ390	Carbon	39 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C415	ECEA25W6R5Z	Electrolytic	6.5 μ F	25V		R162	ERD14TJ122	Carbon	1.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C416	ECQM4473KZ	Polyester	0.047 μ F $\pm 10\%$	400V		R163	ERD14TJ822	Carbon	8.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C418	ECQM2223KZ	Polyester	0.022 μ F $\pm 10\%$	200V		R164	ERD14TJ334	Carbon	330K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C419	ECKD2H391MB	Polyester	390pF $\pm 20\%$	500V		R165	ERD14TJ822	Carbon	8.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C420	ECEA160V1V	Electrolytic	1 μ F	160V		R171	ERD14TJ103	Carbon	10K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C421	ECEA160V10Q	Electrolytic	10 μ F	160V		R172	ERD14TJ102	Carbon	1K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C425	ECEA50V100Y	Electrolytic	100 μ F	50V		R173	ERD14TJ681	Carbon	680 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C426	ECKD2H102KB	Ceramic	1000pF $\pm 10\%$	500V		R174	ERD14TJ390	Carbon	39 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C427	ECKD2H391KB	Ceramic	390pF $\pm 10\%$	500V		R181	ERD14TJ562	Carbon	5.6K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C440	ECKD2H102KB	Ceramic	1000pF $\pm 10\%$	500V		R182	ERD14TJ101	Carbon	100 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C491	ECEA16V1000L	Electrolytic	1000 μ F $\pm 10\%$	16V		R183	ERD14TJ681	Carbon	680 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C501	ECEA16N4R7L	Electrolytic	4.7 μ F	16V		R184	ERD14TJ161	Carbon	160 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C502	ECKD1H102KB	Polyester	1000pF $\pm 10\%$	50V		R185	ERF14TJ822	Carbon	8.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C503	ECEA6V33L	Electrolytic	33 μ F	6V		R186	ERD14TJ472	Carbon	4.7K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C504	ECEA10V33L	Electrolytic	33 μ F	10V		R187	ERD14TJ223	Carbon	22K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C505	ECEA10V330L	Electrolytic	330 μ F	10V		R188	ERD14TJ563	Carbon	56K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C506	ECKD1H103PF	Ceramic	0.01 μ F +100%-0%	50V		R189	ERD14TJ102	Carbon	1K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C507	ECKD1H103PF	Ceramic	0.01 μ F +100%-0%	50V		R190	ERD14TJ151	Carbon	150 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C509	ECEA16V1000L	Electrolytic	1000 μ F	16V		R202	ERD14FJ220	Carbon	22 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C515	ECQM05223KZ	Polyester	0.022 μ F $\pm 10\%$	50V		R204	ERD14TJ223	Carbon	22K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C603	ECKDDS102MD	Ceramic	0.001 μ F $\pm 20\%$	250V		R301	ERD14TJ222	Carbon	2.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C612	ECEB16V10L	Electrolytic	10 μ F	16V		R302	ERD14TJ823	Carbon	82K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C701	ECKD2H472PE	Ceramic	4700pF +100%-0%	500V		R303	ERD14TJ683	Carbon	68K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C702	ECKD2H472PE	Ceramic	4700pF +100%-0%	500V		R304	ERD14TJ184	Carbon	180K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C703	ECKD2H472PE	Ceramic	4700pF +100%-0%	500V		R306	ERD14TJ153	Carbon	15K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C704	ECKD2H472PE	Ceramic	4700pF +100%-0%	500V		R308	ERD14TJ103	Carbon	10K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C705	ECET25R3300S	Electrolytic	3300 μ F	25V		R309	ERD14TJ6R8	Carbon	6.8 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C706	ECEA16V10L	Electrolytic	10 μ F	16V		R310	ERM12PKR33	Resin	0.33 Ω	$\pm 10\%$	$\frac{1}{4}$ W
C707	ECKD1H102MB	Ceramic	1000pF $\pm 20\%$	50V		R312	ERD14TJ2R2	Carbon	2.2 Ω	$\pm 5\%$	$\frac{1}{4}$ W
C708	ECQM05822KZ	Polyester	8200pF $\pm 10\%$	50V		R313	ERD14TJ622	Carbon	6.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
C709	ECKD1H103PF	Ceramic	0.01 μ F +100%-0%	50V		R314	ERD14TJ562	Carbon	5.6K Ω	$\pm 5\%$	$\frac{1}{4}$ W
RESISTORS						R315	ERD14TJ681	Carbon	680 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R101	ERD14TJ390	Carbon	39 Ω	$\pm 5\%$	$\frac{1}{4}$ W	R316	ERD14TJ222	Carbon	2.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
R102	ERD14TJ391	Carbon	390 Ω	$\pm 5\%$	$\frac{1}{4}$ W	R317	ERD14TJ333	Carbon	33K Ω	$\pm 5\%$	$\frac{1}{4}$ W
R103	ERD14TJ182	Carbon	1.8K Ω	$\pm 5\%$	$\frac{1}{4}$ W	R319	ERD14TJ6R8	Carbon	6.8 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R104	ERD14TJ561	Carbon	560 Ω	$\pm 5\%$	$\frac{1}{4}$ W	R320	ERD14TJ151	Carbon	150 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R105	ERD14TJ271	Carbon	270 Ω	$\pm 5\%$	$\frac{1}{4}$ W	R321	ERD14TJ121	Carbon	120 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R106	ERD14TJ272	Carbon	2.7K Ω	$\pm 5\%$	$\frac{1}{4}$ W	R322	ERD14TJ221	Carbon	220 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R107	ERD14TJ103	Carbon	10K Ω	$\pm 5\%$	$\frac{1}{4}$ W	R323	ERD14FJ1R0	Carbon	1 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R108	ERD14TJ272	Carbon	2.7 Ω	$\pm 5\%$	$\frac{1}{4}$ W	R324	ERD14FJ1R0	Carbon	1 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R109	ERD14TJ222	Carbon	2.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W	R325	ERD14TJ471	Carbon	470 Ω	$\pm 5\%$	$\frac{1}{4}$ W
R110	ERD14TJ101	Carbon	100 Ω	$\pm 5\%$	$\frac{1}{4}$ W	R326	ERD14TJ222	Carbon	2.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
						R327	ERD14TJ272	Carbon	2.7K Ω	$\pm 5\%$	$\frac{1}{4}$ W
						R331	ERD14TJ563	Carbon	56K Ω	$\pm 5\%$	$\frac{1}{4}$ W
						R332	ERD14TJ822	Carbon	8.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W
						R333	ERD14FJ2R2	Carbon	2.2 Ω	$\pm 5\%$	$\frac{1}{4}$ W
						R334	ERD14TJ390	Carbon	39 Ω	$\pm 5\%$	$\frac{1}{4}$ W
						R335	ERTD2ZFL130	Thermistor	13 Ω		
						R336	ERD14TJ390	Carbon	39 Ω	$\pm 5\%$	$\frac{1}{4}$ W
						R401	ERD14TJ822	Carbon	8.2K Ω	$\pm 5\%$	$\frac{1}{4}$ W

REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION				REF. NO.	PARTS NO.	PARTS NAME & DESCRIPTION			
R402	ERC12GJ332	Solid	3.3K Ω	$\pm 5\%$	$\frac{1}{2}W$	R608	ERC12GJ103	Solid	10K Ω	$\pm 5\%$	$\frac{1}{2}W$
R404	ERD14TJ822	Carbon	8.2K Ω	$\pm 5\%$	$\frac{1}{4}W$	R609	ERC12GJ152	Solid	1.5K Ω	$\pm 5\%$	$\frac{1}{2}W$
R405	ERD14TJ822	Carbon	8.2K Ω	$\pm 5\%$	$\frac{1}{4}W$	R701	ERD14TJ182	Carbon	1.8K Ω	$\pm 5\%$	$\frac{1}{4}W$
R406	ERC12GJ101	Solid	100 Ω	$\pm 5\%$	$\frac{1}{4}W$	R702	ERD14TJ821	Carbon	820 Ω	$\pm 5\%$	$\frac{1}{4}W$
R407	ERC12GJ271	Solid	270 Ω	$\pm 5\%$	$\frac{1}{2}W$	R703	ERD14TJ561	Carbon	560 Ω	$\pm 5\%$	$\frac{1}{4}W$
						R704	TRF15SJ150	Non Flame	15 Ω	$\pm 5\%$	15W
R412	ERD14TJ223	Carbon	22K Ω	$\pm 5\%$	$\frac{1}{4}W$	R705	ERD14TJ682	Carbon	6.8K Ω	$\pm 5\%$	$\frac{1}{4}W$
R413	ERD14TJ561	Carbon	560 Ω	$\pm 5\%$	$\frac{1}{4}W$	R706	ERD14TJ101	Carbon	100 Ω	$\pm 5\%$	$\frac{1}{4}W$
R414	ERD14TJ122	Carbon	1.2K Ω	$\pm 5\%$	$\frac{1}{4}W$	R707	ERC12GJ101	Solid	100 Ω	$\pm 5\%$	$\frac{1}{2}W$
R415	ERD14TJ472	Carbon	4.7K Ω	$\pm 5\%$	$\frac{1}{4}W$	R708	ERD14TJ471	Carbon	470 Ω	$\pm 5\%$	$\frac{1}{4}W$
R416	ERD14TJ181	Carbon	180 Ω	$\pm 5\%$	$\frac{1}{4}W$	R711	TRF2SJ151	None Flame	150 Ω	$\pm 5\%$	2W
						R714	ERD14FJ680	Carbon	68 Ω	$\pm 5\%$	$\frac{1}{4}W$
R417	ERD14TJ220	Carbon	22 Ω	$\pm 5\%$	$\frac{1}{4}W$	C-R COMBINATIONS					
R418	ERD14TJ471	Carbon	470 Ω	$\pm 5\%$	$\frac{1}{4}W$	X141	EFCAS5R5M1	Cerap	5.5MHz		
R419	ERQ12HJ100	Fuse	10 Ω	$\pm 5\%$	$\frac{1}{2}W$	CR101	EXAP103Z471	C-R Combination			
						CR103	EXAP103Z471	C-R Combination			
R424	ERD14TJ473	Carbon	47K Ω	$\pm 5\%$	$\frac{1}{4}W$	CR106	EXAP103Z221	C-R Combination			
R426	TRF2SKR47	Non Flame	0.47 Ω	$\pm 10\%$	2W	CR181	EXAF203Z182	C-R Combination			
R427	ERC12GJ186	Solid	18M Ω	$\pm 5\%$	$\frac{1}{4}W$	CONTROLS					
R501	ERD14TJ222	Carbon	2.2K Ω	$\pm 5\%$	$\frac{1}{4}W$	VR18	EVT3AA00B52	IF AGC	500 ΩB		
R502	ERD14TJ153	Carbon	15K Ω	$\pm 5\%$	$\frac{1}{4}W$	VR19	EVTV0AA00B13	RF AGC	1K ΩB		
						VR31	EVD66A25KA25	Vert. Hold	200K ΩA		
R503	ERD14TJ393	Carbon	39K Ω	$\pm 5\%$	$\frac{1}{4}W$	VR32	EVTV0AA00B24	Height	20K ΩB		
R504	ERD14TJ100	Carbon	10 Ω	$\pm 5\%$	$\frac{1}{4}W$	VR33	EVTV0AA00B13	Linearity	1K ΩB		
R505	ERD14TJ181	Carbon	180 Ω	$\pm 5\%$	$\frac{1}{4}W$						
R506	ERD14TJ181	Carbon	180 Ω	$\pm 5\%$	$\frac{1}{4}W$	VR61	EVVBLMF25U14	Volume	10K ΩU		
R509	ERD14TJ151	Carbon	150 Ω	$\pm 5\%$	$\frac{1}{4}W$	VR62	EVVB1AF2513X	Contrast	1K ΩX		
						VR63	EVVB0AF25B55	Brightness	500K ΩB		
R510	ERD14FJ1R0	Carbon	1 Ω	$\pm 5\%$	$\frac{1}{4}W$	VR71	EVT3AA00B13	AVR	1K ΩB		
R511	ERD14FJ1R0	Carbon	1 Ω	$\pm 5\%$	$\frac{1}{4}W$	TRANSFORMERS					
R512	ERD12FJ220	Carbon	22 Ω	$\pm 5\%$	$\frac{1}{4}W$	T401	TLF80815	Flyback Transformer			
R581	ERD14TJ560	Carbon	56 Ω	$\pm 5\%$	$\frac{1}{4}W$	T701	TLP80261W	Power Transformer			
R603	ERC12GJ152	Solid	1.5K Ω	$\pm 5\%$	$\frac{1}{2}W$						

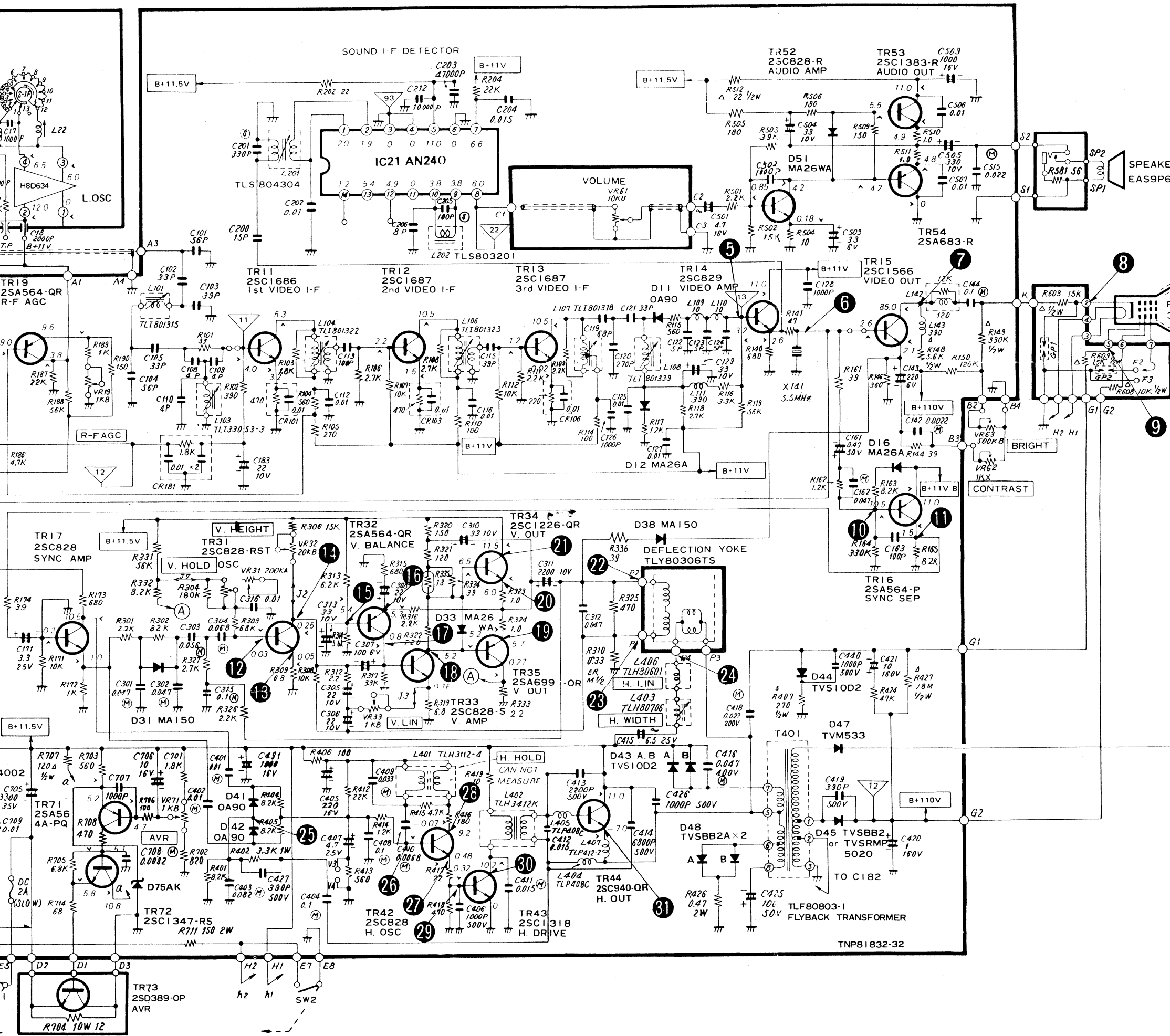


<p>COLLECTOR BASE EMITTER</p> <p>BOTTOM VIEW</p>	<p>GROUND EMITTER COLLECTOR BASE</p> <p>BOTTOM VIEW</p>	<p>GROUND COLLECTOR BASE EMITTER</p> <p>BOTTOM VIEW</p>	<p>COLLECTOR BASE EMITTER</p> <p>BOTTOM VIEW</p>	<p>EMITTER COLLECTOR BASE</p> <p>BOTTOM VIEW</p>
2SC761	2SC683	2SC761 2SC948	2SA683 2SA751 2SC1383	2SC901A
<p>COLLECTOR BASE EMITTER</p> <p>BOTTOM VIEW</p>	<p>BASE EMITTER COLLECTOR</p> <p>BOTTOM VIEW</p>	<p>COLLECTOR BASE EMITTER</p> <p>BOTTOM VIEW</p>	<p>GROUND COLLECTOR BASE EMITTER</p> <p>BOTTOM VIEW</p>	<p>COLLECTOR BASE EMITTER</p> <p>BOTTOM VIEW</p>
2SA564A 2SC828A 2SC829	2SC564A 2SC1215 2SC1318	2SC1012	2SA699 2SC1226	2SC562 2SC563 2SD389

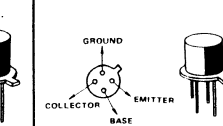
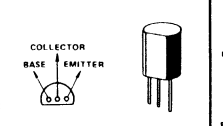
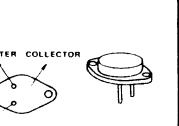
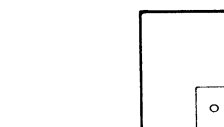
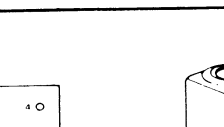
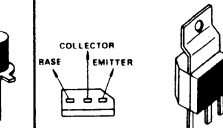
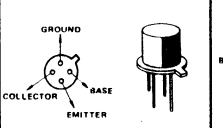
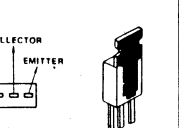

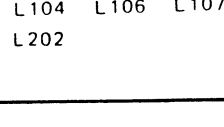
11544

SCHEMATIC DIAGRAM OF MODEL TR-602ES

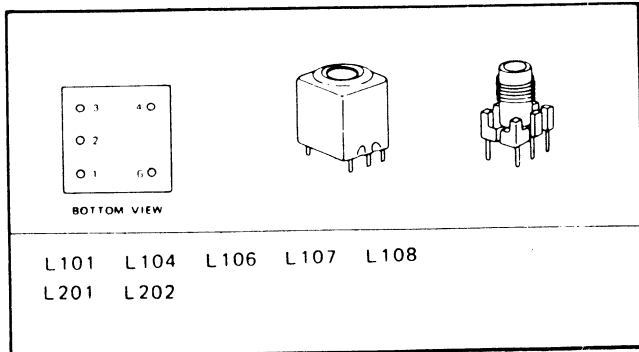
CHASSIS NO. T125D-E



TRANSISTOR BASE INFORMATION

				
2SC761 2SC948	2SA683 2SA751	2SC901A		
2SC1383				
				
2SA699 2SC1226	2SC562 2SC563	2SD389		

TRANSFORMER TERMINAL INFORMATION



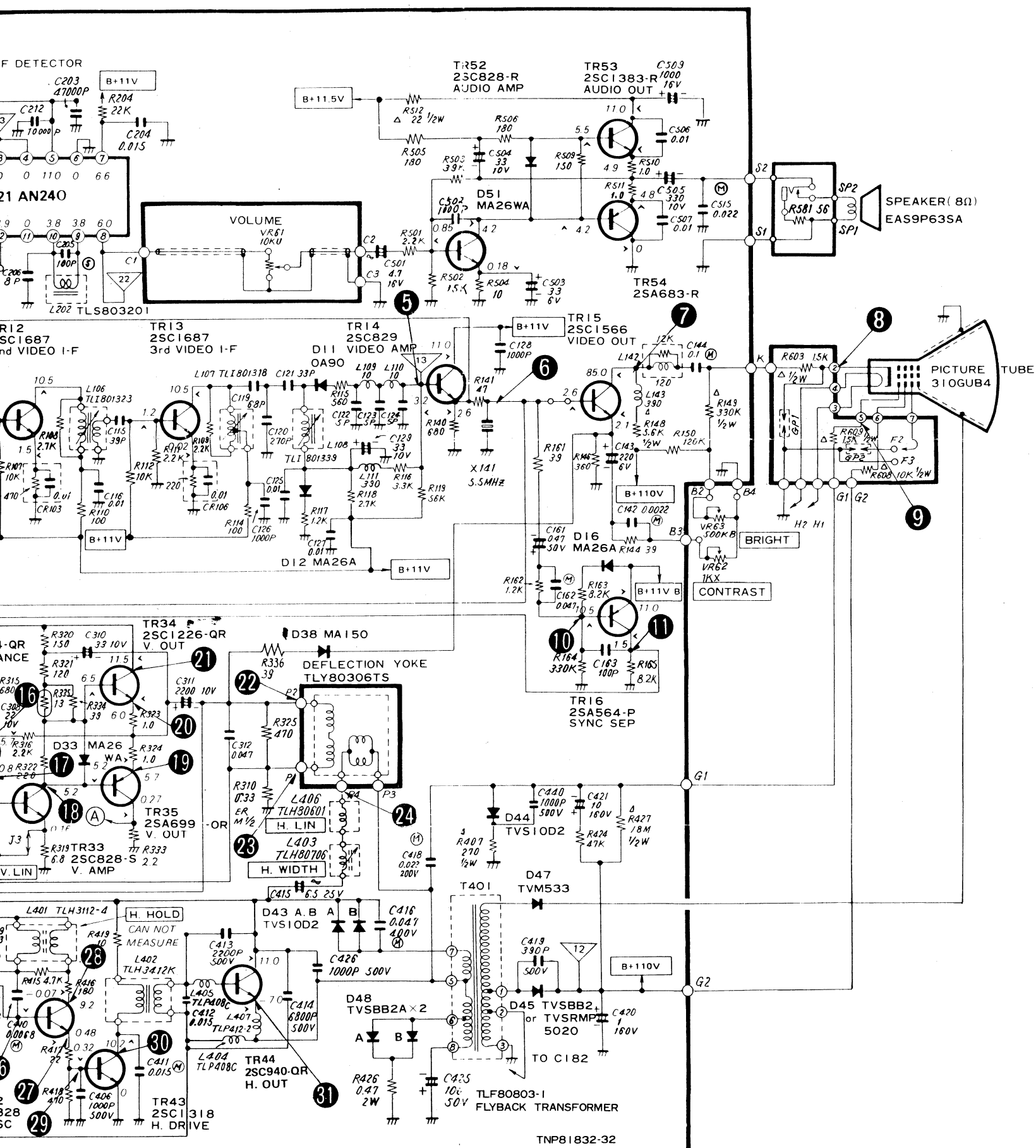
NOTE

- RESISTOR
All resistors are carbon 1/4W resistor, unless otherwise noted.
Unit of resistance is OHM (Ω). (K=1,000, M=1,000,000)
 Δ : Solid resistor
 \square : Wire wound resistor
 $\text{---}\text{---}\text{---}$: Fuse resistor
- CAPACITOR
All capacitors are ceramic 50V capacitor, unless otherwise noted.
Unit of capacitance is μF , unless otherwise noted.
 $\text{---}\text{---}\text{---}$: Polyester capacitor
 $\text{---}\text{---}\text{---}$: Electrolytic capacitor
- COIL
Unit of inductance is μH .
- TEST POINT
 ∇ : Test point position.
- VOLTAGE MEASUREMENT
Voltage is measured by a volt ohm meter with D all controls are set to the maximum position.
- Number in red circle indicates waveform number.
- When arrow mark (\nearrow) is found, connection is easy.
- When schematic diagram of a board is described by a dotted line (---).
- This schematic diagram is the latest at the time of printing.

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OF MODEL TR-602ES

D. T125D-E



NOTE

- RESISTOR**
All resistors are carbon 1/4W resistor, unless otherwise noted the following marks.
Unit of resistance is OHM (Ω). (K=1,000, M=1,000,000)
 - Δ : Solid resistor
 - \square : Wire wound resistor
 - --- : Fuse resistor
 - \bullet : Metal oxide resistor
 - --- : Thermistor
- CAPACITOR**
All capacitors are ceramic 50V capacitor, unless otherwise noted the following marks.
Unit of capacitance is μF , unless otherwise noted.
 - --- : Polyester capacitor
 - --- : Polystyrene capacitor
 - --- : Electrolytic capacitor
- COIL**
Unit of inductance is μH .
- TEST POINT**
 ∇ : Test point position.
- VOLTAGE MEASUREMENT**
Voltage is measured by a volt ohm meter with DC 20K OHM/V receiving normal signal, when all controls are set to the maximum position.
- Number in red circle indicates waveform number.
- When arrow mark (\nearrow) is found, connection is easily found along with the direction of an arrow.
- When schematic diagram of a board is described in more than two places, they are encircled with dotted line (---).
- This schematic diagram is the latest at the time of printing and subject to change without notice.
(Mar, '75)